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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,962	05/25/2000	Takashi Iwasaki	6920/0H207	7076

7590

09/03/2003

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EXAMINER

STOCK JR, GORDON J

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/578,962	<b>Applicant(s)</b> IWASAKI ET AL	
	<b>Examiner</b> Gordon J Stock	<b>Art Unit</b> 2877	

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 02 June 2003.

2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-10 and 12-17 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☒ Claim(s) 6, 8, 10 and 15 is/are allowed.

6) ☒ Claim(s) 1-3, 5, 9, 12, 13 and 16 is/are rejected.

7) ☒ Claim(s) 4, 7, 14, and 17 is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 02 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
       Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
       If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
       a) ☐ All    b) ☐ Some \* c) ☐ None of:  
           1. ☐ Certified copies of the priority documents have been received.  
           2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
           3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
       \* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
       a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3, 4</u> .	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other:
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## DETAILED ACTION

### *Drawings*

1. The drawing was received on June 2, 2003. This drawing is acceptable.

### *Claim Objections*

2. **Claims 2, 3, 7, 13, and 16** are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The statement that the difference between the respective coefficients of linear expansion being the absolute value of  $d/(4\alpha L\Delta T)$  or less and  $10 \times 10^{-6}/\text{degrees Celsius}$  or less does not further limit the previous claims for the previous claims state the coefficient of linear expansion of a material forming the substrate and the coefficient of linear expansion of a focal length of the concave mirrors are approximately the same. Therefore, their difference is approximately zero.

3. **Claims 16 and 17** are objected to under 37 CFR 1.75 as being a substantial duplicate of **claims 13 and 14**. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-3, 5, and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Unal et al. (5,734,165)**.

As to **claims 1 and 9**, Unal discloses in a infrared absorption photometer the following: an optical spectrum analyzer, an infrared absorption photometer, comprising: an optical ray input section which limits the width of optical rays input from a light source; a first concave mirror for converting the optical rays passing through the optical ray input section into parallel rays; a diffraction grating; a second concave mirror for condensing the diffracted rays; an optical ray output section which limits a wavelength band width; a substrate to which the optical ray input section, the first concave mirror, the diffraction grating, the second concave mirror, and the optical ray output section are fixed (Fig. 1; col. 4, lines 25-55).

Unal is silent concerning coefficients of linear expansion, but Unal discloses the system comprises polymethyl metacrylate (col. 4, lines 27-30). It is well known in the art that a coefficient of linear expansion is a thermodynamic property of a material. Therefore, it would be obvious to one skilled in the art at the time that the coefficients of linear expansion are approximately the same, for the mirrors and substrate comprise the same material, polymethyl metacrylate.

As to **claim 2**, Unal discloses everything as above (see **claim 1**). Unal does not disclose the absolute value of the difference between the coefficients of linear expansion of the material forming the substrate and the concave mirrors being the absolute value of  $d/(4aL\Delta T)$  or less. It would be obvious to one skilled in the art that the absolute value of the difference between the coefficients of linear expansion of the material forming the substrate and the concave mirrors be

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the absolute value of  $d/(4aL\Delta T)$  or less. By having the mirrors and substrate be made of the same material and therefore having the same coefficients of linear expansion, the absolute difference will be zero, the absolute value of  $d/(4aL\Delta T)$  or less.

As to **claim 3**, Unal discloses everything as above (see **claim 1**). Unal does not disclose a difference between the coefficient of linear expansion of the material forming the substrate and the coefficients of linear expansion of the focal lengths of the first and second concave mirrors as being  $10 \times 10^{-6}/\text{degrees Celsius}$  or less. It would be obvious to one skilled in the art that the difference between the coefficients of linear expansion is  $10 \times 10^{-6}/\text{degrees Celsius}$  or less. By having the mirrors and substrate made of the same material and therefore having the same coefficient of thermal expansion, the difference will be zero, which is less than  $10 \times 10^{-6}/\text{degrees Celsius}$ .

As to **claim 5**, Unal discloses everything as above (see **claim 1**). In addition, Unal discloses the output and input sections is a slit (Fig. 1, **3** and **4**).

6. **Claims 12, 13, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Unal et al. (5,734,165)** in view of **Rajic et al. (5,754,290)**.

As for **claim 12**, Unal discloses everything as above. He does not disclose the mirrors being of glass material. Rajic in a monolithic spectrometer teaches a monolithic body may comprise glass or polymethyl methacrylate (col. 3, lines 17-22). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the system comprise glass, for monolithic systems may comprise glass, plastics, or acrylics.

As for **claims 13 and 16**, Unal in view of Rajic discloses everything as above (see **claim 12**). Unal does not disclose a difference between the coefficient of linear expansion of the

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material forming the substrate and the coefficients of linear expansion of the focal lengths of the first and second concave mirrors as being  $10 \times 10^{-6}$ /degrees Celsius or less. It would be obvious to one skilled in the art that the difference between the coefficients of linear expansion is  $10 \times 10^{-6}$ /degrees Celsius or less. By having the mirrors and substrate made of the same material, glass, and therefore having the same coefficient of thermal expansion, the difference will be zero that is less than  $10 \times 10^{-6}$ /degrees Celsius.

*Allowable Subject Matter*

7. **Claims 6, 8, 10, and 15** are allowed.

**Claims 4, 14, and 17** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Claim 7** would be allowable if rewritten to overcome the objection above and if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to **claims 4, 14, and 17**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a monochromator the material forming the substrate is a composite of aluminum and ceramic, in combination with the rest of the limitations of **claims 4, 14, and 17**.

As to **claim 6**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a monochromator "the concave mirror condenses the diffracted rays when the diffracted rays are input, and the slit limits a wavelength band width of the condensed rays; wherein a coefficient of linear expansion of a focal length of the concave mirror and a coefficient of linear expansion of a material forming the substrate are approximately the same" in combination with the rest of the limitations of **claims 6-8, 10, and 15**.

***Response to Arguments***

8. Applicant's arguments, see Remarks pages 9-11, filed June 2, 2003, with respect to **claims 6-8, and 10** have been fully considered and are persuasive. The rejection under 35 U.S.C. 103(a) of **claims 6-8, 10** has been withdrawn.

9. Applicant's arguments, see Remarks pages 9-11, filed June 2, 2003, with respect to the rejection(s) of **claim(s) 1-5, and 9** under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made: see above for **claims 1-3, 5, and 9**.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent 4,744,618 to Mahlein

U.S. Patent 5,712,705 to Fattinger et al. (specifically, col. 11, lines 14-40)

***Fax/Telephone Numbers***

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The*

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*form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 308-7722*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (703) 305-4787.

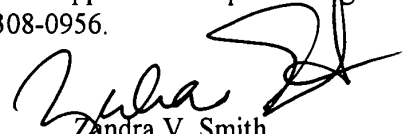
The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

YD

gs

August 15, 2003

  
Zandra V. Smith  
Primary Examiner  
Art Unit 2877